INTERNAL USE ONLY

DT 400/L II

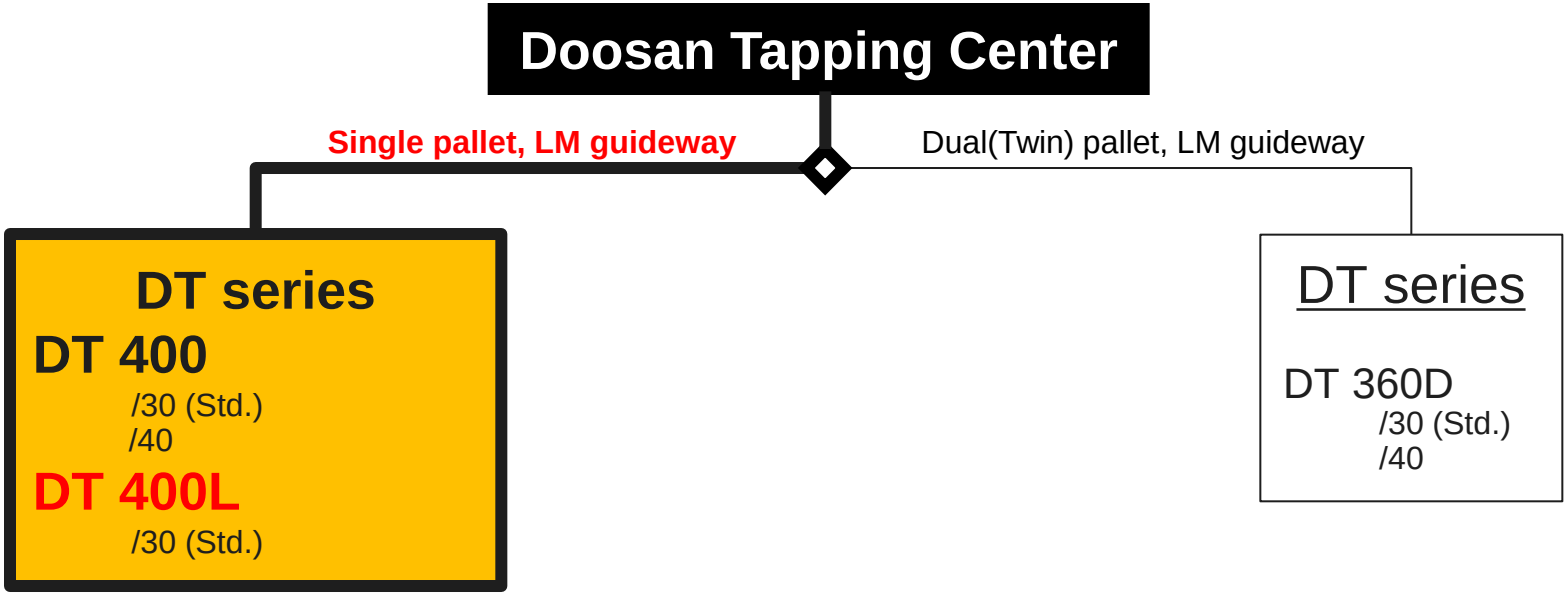
New, High Productive Tapping center

2014. 01
Doosan Infracore

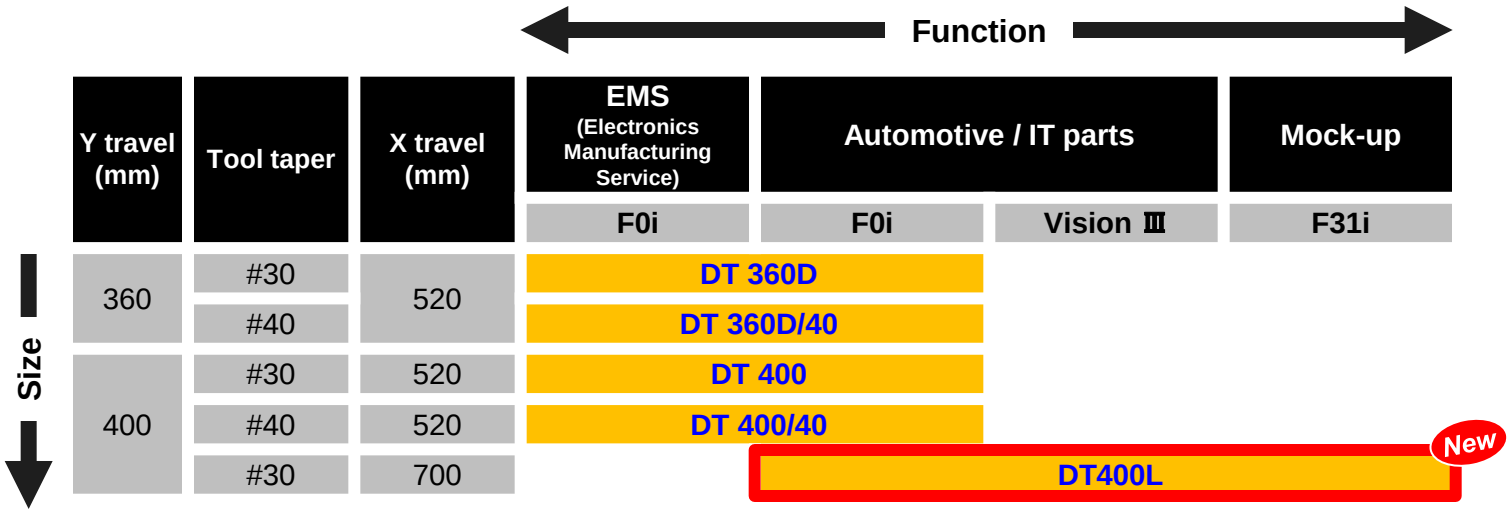
Vertical MC

		a	b		c	d				e			
Y travel or Rotary table dia. (mm)		Tapping Center	VMC		Productivity VMC	Die & Mold VMC				5axis VMC			
		DT series	DNM series	Mynx series	VC series	VM series	DVM series	NX series	FM *linear* series	DNM series	NX series	VC	FM *linear* series
													
Y travel (mm)	~ 450	DT 400 DT 360D DT 400L	DNM 400 II		VC 430			NX 4500 II	FM 400 *linear*				
	~550		DNM 500 II	Mynx 5400	VC 510	VM 5400 VM 560	DVM 500 II	NX 5500 II					
	~670		DNM 650 II	Mynx 6500		VM 6500	DVM650 II	NX 6500 II					
	~750		DNM 750	Mynx 7500		VM 750							
	~850												
	~960		DNM 900			VM 960							
	~1260					VM 1260							
Rotary table dia. (mm)	350									DNM 350/5AX			FM 350/5AX *linear*
	500										NX 500/5AX		
	630											VC 630/5AX	

a Tapping Center



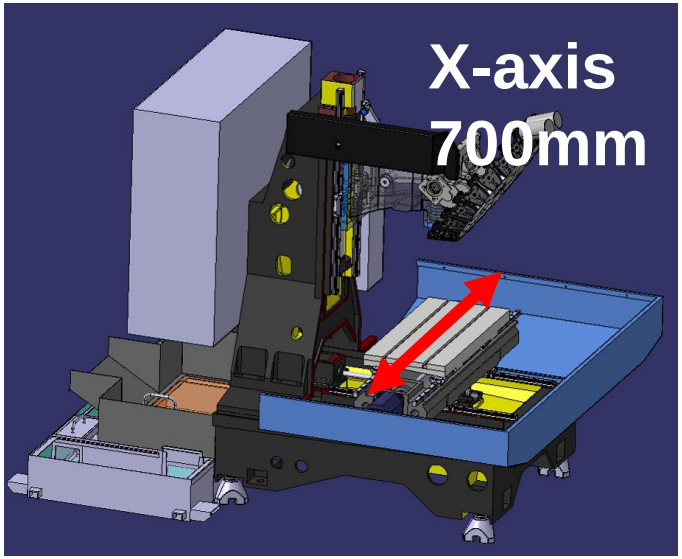
DT series


Function
Size
Y travel (mm)
Tool taper
X travel (mm)
EMS (Electronics Manufacturing Service)
Automotive / IT parts
Mock-up
F0i
F0i
Vision Ⅲ
F31i
360
#30
#40
520
DT 360D
DT 360D/40
400
#30
#40
#30
520
520
700
DT 400
DT 400/40
DT400L
New

a DT 400L

Concept

- **X-axis expansion Tapping center**



Launching / Mass production plan

- **Global launching on Oct. 2013**
- **Mass production from Dec. 2013**

Exhibition plan

- **DIMF2013**

Major specifications (Plan)

- **X-axis : 700 mm (DT400: 520mm)**
- **Y-axis : 400 mm**
- **Z-axis : 350 mm**
- **Max. spindle speed : 12000r/min (Opt. 24000 r/min)**
- **Tool capacity : 21 ea (servo)**
- **NC Controller : F0iMD, F31i, Vision III**

Sales points

- **Compact and cost effective machine**
- **Suitable for many kinds of automobile and IT parts**

Target customers / Application

- **Automobile industry**
- **IT industry**
- **Mock-up**

Competitors / Model

- **Fanuc**
- **Brother**
- **Haas**
- **DMG**

DT series_DT 400L New

Vision Ⅲ

Fanuc

1. **Servo driven ATC(Std.) provides a high reliability, accuracy and durability**

2. **Roller type LM guideway in X/Y/Z all axes for high rigidity & long life**

3. **Three kinds of CNC models with VisionⅢ, F-0iMD and F-31iB**

Requirement performance	NC variation.	Competitors
Productivity	Vision Ⅲ	VS. Brother (apply synchronous motor)
Powerful Machining	F-0iMD	VS. HYUNDAI-WIA (apply bigger amplifier)
Quality	F-31iB	VS. Fanuc (apply high grade NC)

A. New & Upgrade vs. DT 400

B. Outstanding Productivity

DT 400/L II _ Concept

DT 400

2009~2013

DT 400/L II

- New DOOSAN Tapping center
  - DT 400 II X-axis 500mm
  - DT 400L II X-axis 700mm

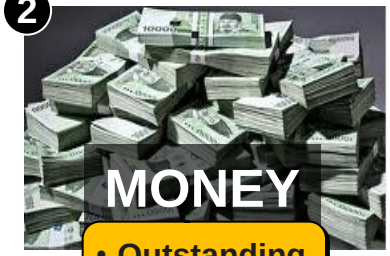
2013년~

1

- Trouble-free and pursuit of high reliability

Win-Win

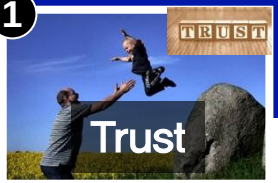
2



- Outstanding Productivity

3

- More convenient

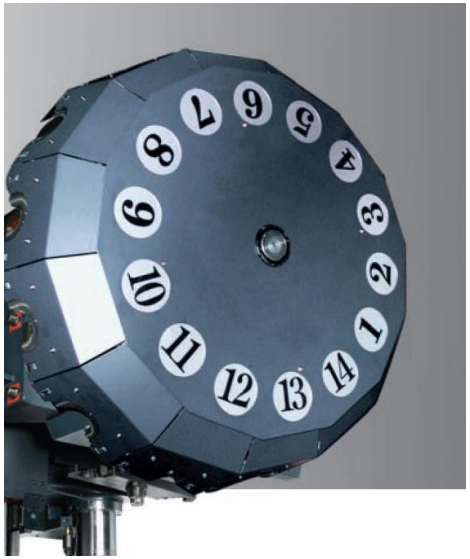


Trouble-free and pursuit of high reliability

▪Servo driven ATC

DT 400

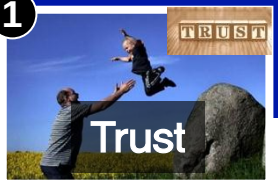
- Cam type ATC (14 tools)
  - peformance insufficiency in motor brake



DT 400/L II

- **Servo type ATC (21 tools)**
  - **remove the problem of ATC's over run**

- **Servo driven ATC for high reliability and productivity**

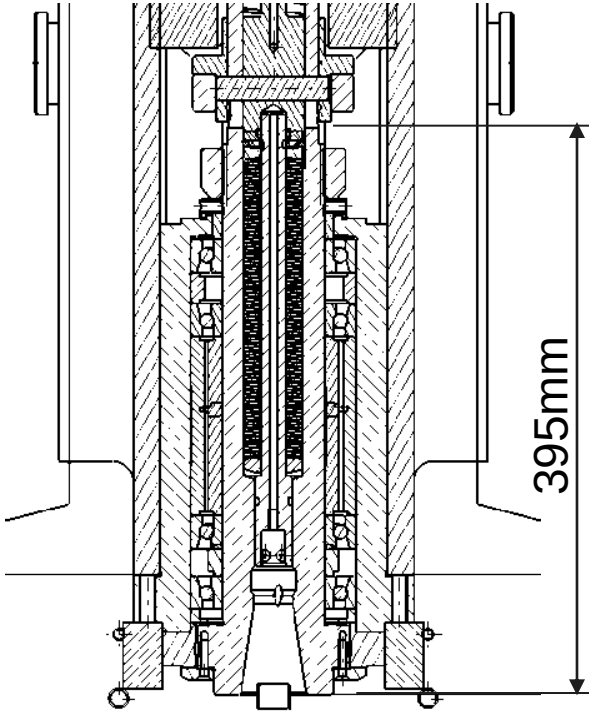


Trouble-free and pursuit of high reliability

- **Apply to newly spindle**

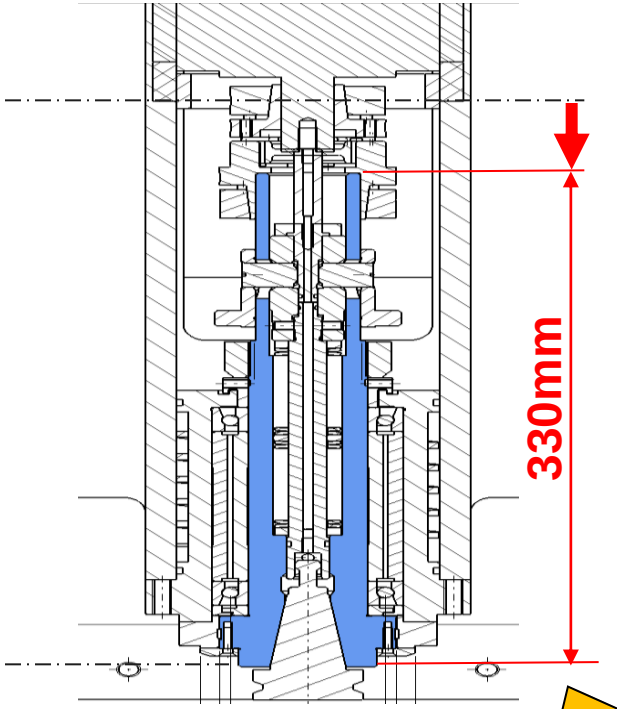
DT 400

- Acc/Dec. is too slow with large spindle
  - 0 ➔ 10,000r/min : 0.8sec



DT 400/L II

- Spindle length reduction about 17%
  ➔ reduce inertia and shorten the Acc/Dec. time about 19%
  - 0 ➔ 10,000r/min : 0.67sec



- **Improve productivity through reduced non-cutting time**
- **Accomplish low vibration/noise**

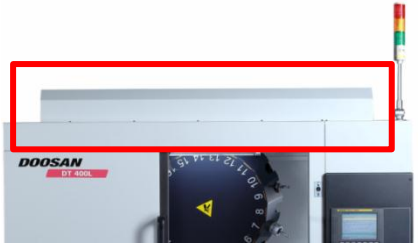
Trouble-free and pursuit of high reliability

DT 400/L II

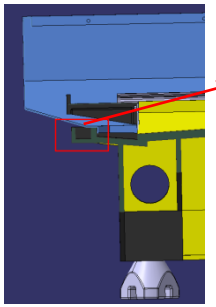
▪Zero leakage

• **Apply for zero leakage flow design**

1. Apply for Top Cover as standard

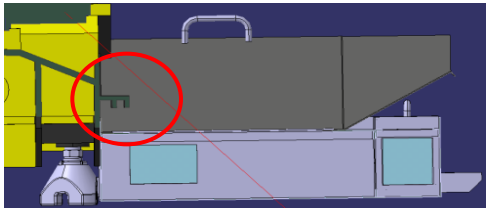


2. Reduce sealing point in Splash guard and securing coolant flow path

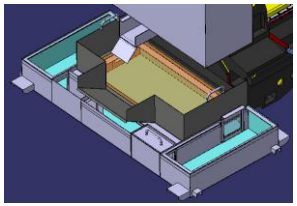


• Coolant leakage free bed

3. Installing coolant tank closely with bed



-Prevent coolant falling with labyrinth structure

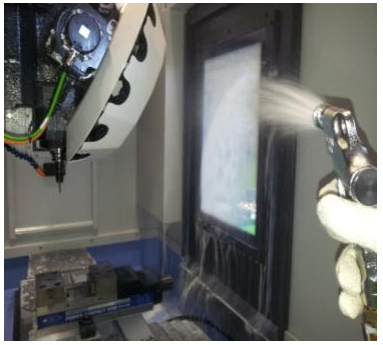


- Easy to chip removal
- 20 mesh chip box (Opt.)

• **Severe leakage test**

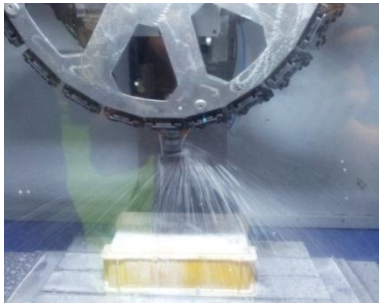
1. Leak test

- with coolant gun each sides



2. Leak test

- One month



Zero leakage

Outstanding productivity

DT 400/L II

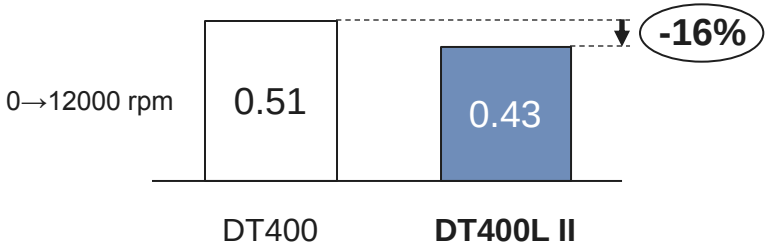
- 스핀들 가감속 시간의 획기적인 단축 및 공구 교환 시간 등의 비 절삭 시간 단축으로 생산성 극대화

▪Outstanding Productivity - Vision III

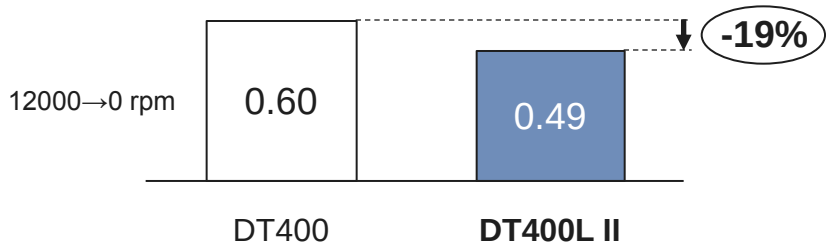
Reduce SPD. Acc/Dec. time

- Apply for synchronous motor
  - low inertia motor

Acc. time (s)



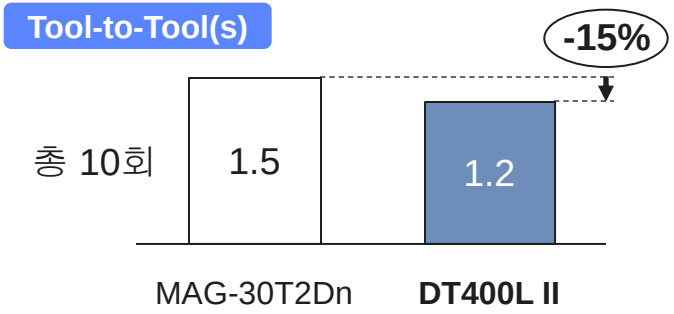
Dec. time (s)



Tool – To – Tool

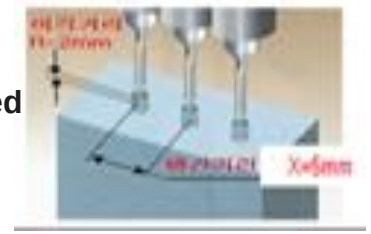
- **Achieve a 15% reduced compared to competitors (vs. Brother)**

Tool-to-Tool(s)

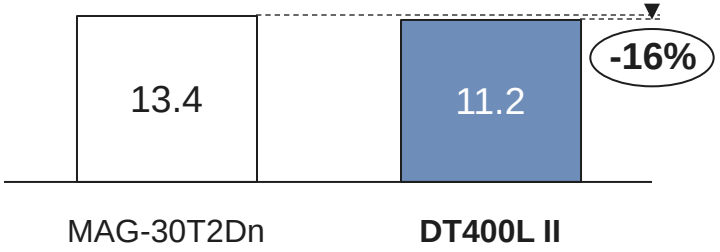


Tapping Productivity

- **Achieve a 16% reduced compared to competitors (vs. Brother)**



Cycle Time(s)



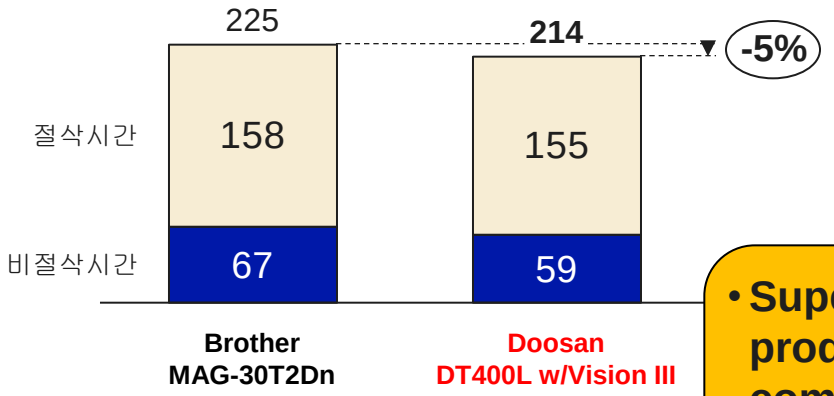
Outstanding productivity

DT 400/L II

▪Outstanding Productivity - Vision III

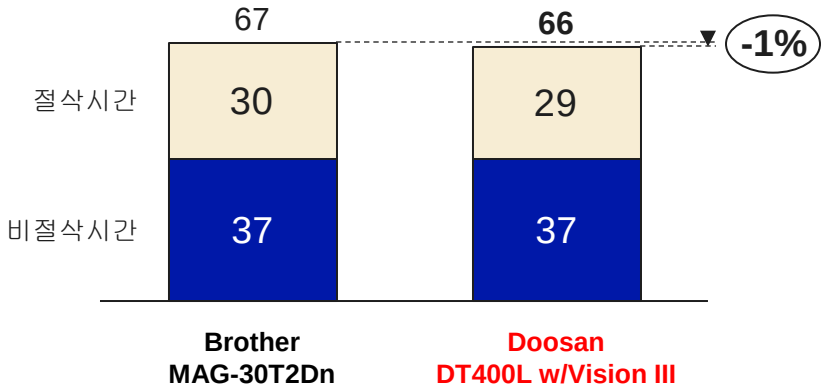
Automotive parts

Cycle time (s)



IT parts

Cycle time (s)



- **Superior productivity compared to competitors (Brother)**

Outstanding productivity

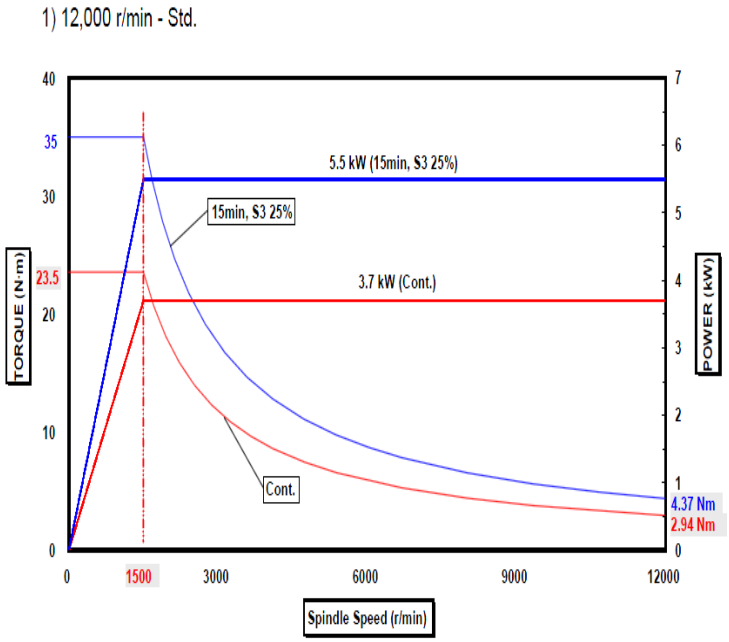
DT 400

DT 400/L II

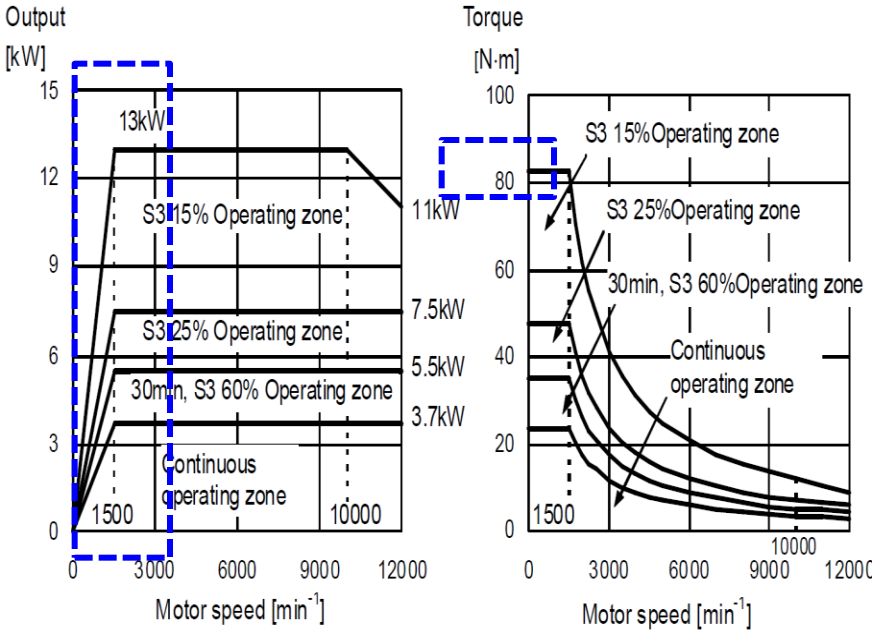
▪Powerful Cutting
- Fanuc 0iMD

• Power-Torque diagram

– Standard



– Standard



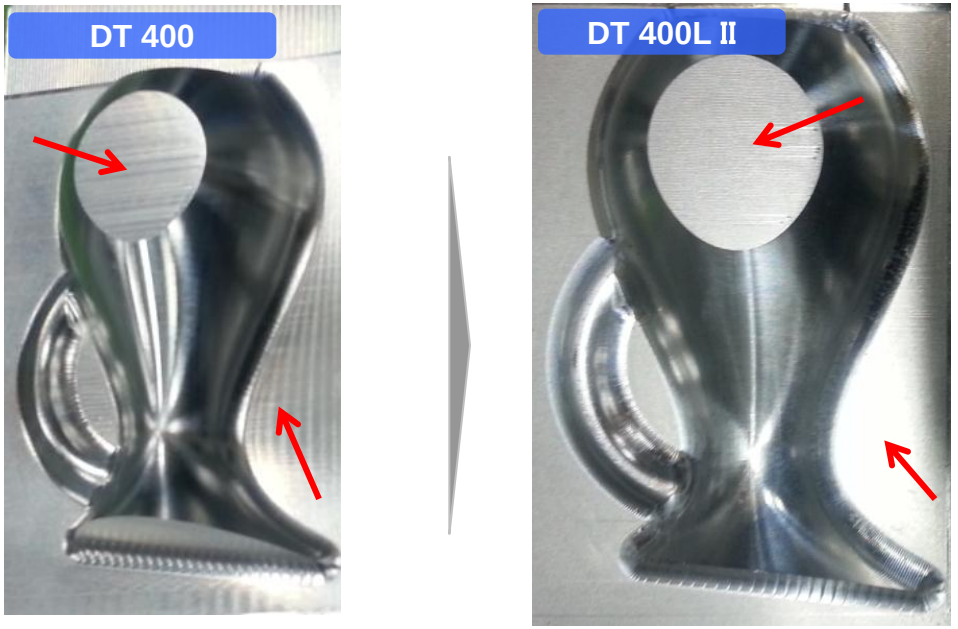
• Max. Power : 5.5kW ➔ 13kW
• Max. torque : 35N·m ➔ 83N·m

Outstanding productivity

DT 400/L II

▪Precision machining
- Fanuc 31iB

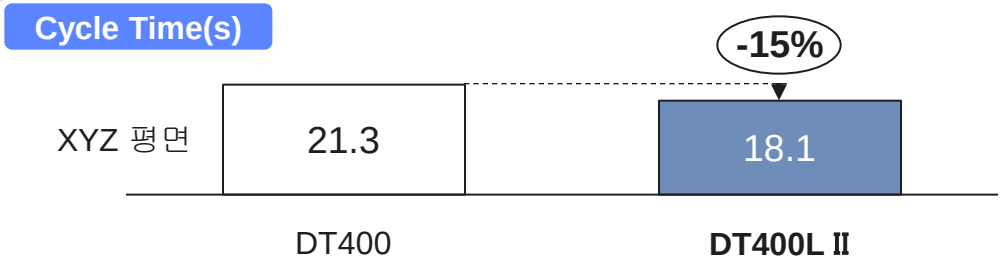
Surface roughness (vase)



- 이송계, 주축 성능 향상 및 구조물 강성 증대에 따른 조도 품질 획기적 개선 달성
- 당사 시편(물병) 가공 기준, 조도 품질 및 생산성에서 확연한 차이를 보임

Productivity

- Achieve a 15% reduced compared to previous model



Outstanding productivity

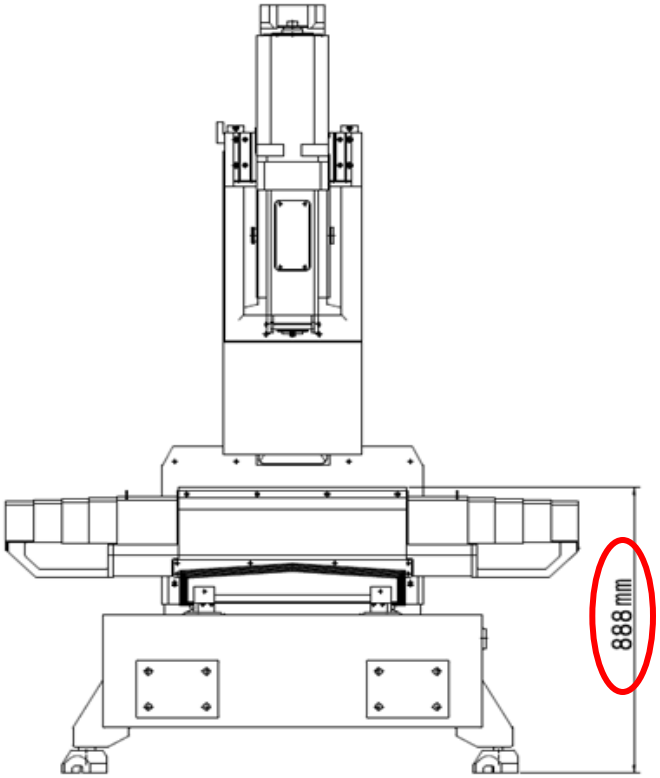
VIDEO
(Outstanding Productivity)

More convenient

▪Low-centered design

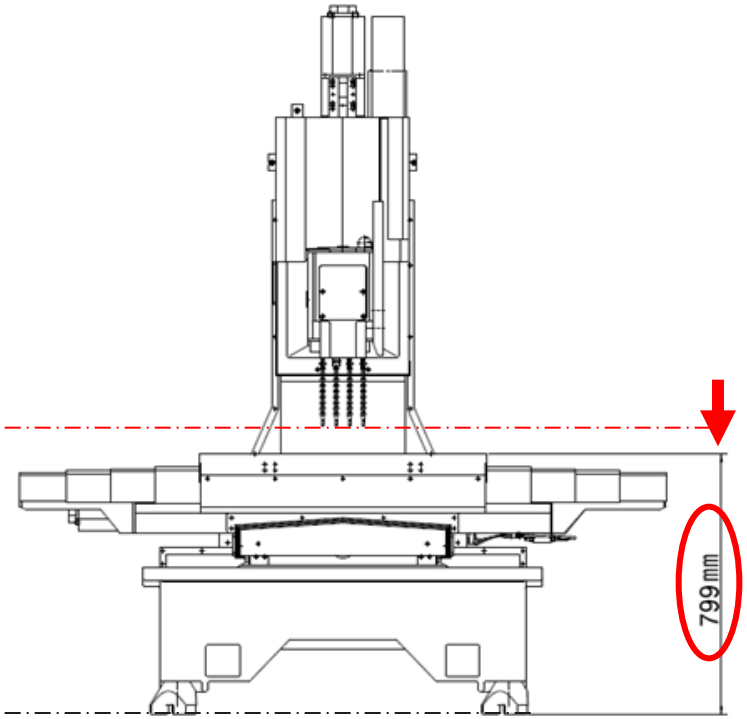
DT 400

- Distance from bottom surface to table top
  - 888mm



DT 400/L II

–799 mm ➔ reduced 89mm



- **Minimize operator fatigue when set-up and detachable workpiece**
- **Maximize the machining stability**

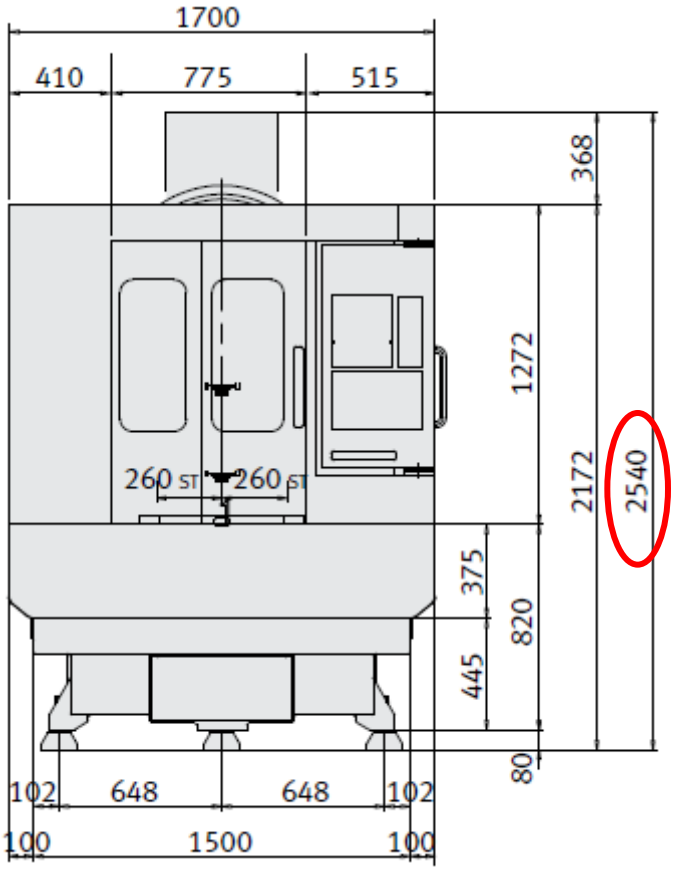
More convenient

▪Machine height

DT 400

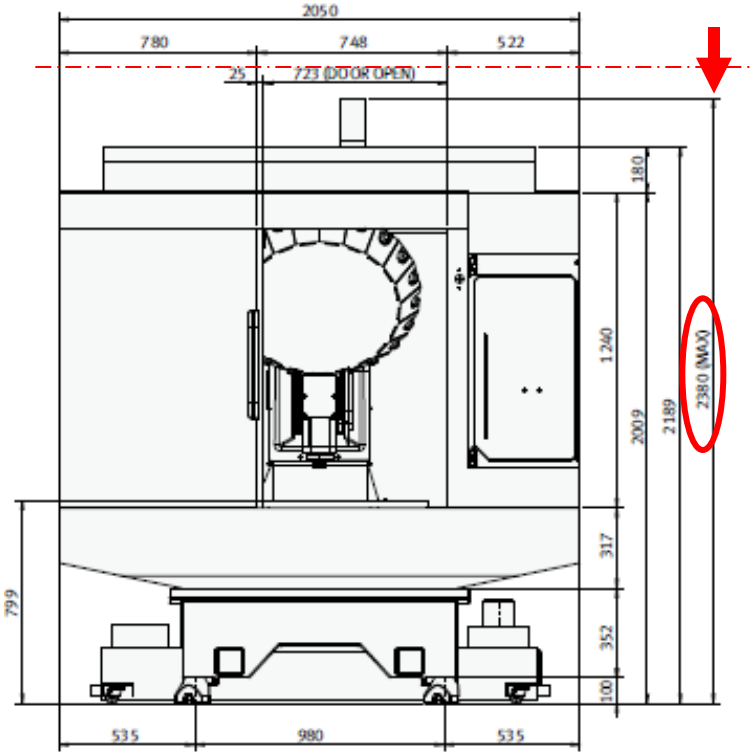
• Machine height

−2540 mm



DT 400/L II

−2380 mm ➔ reduced 160mm



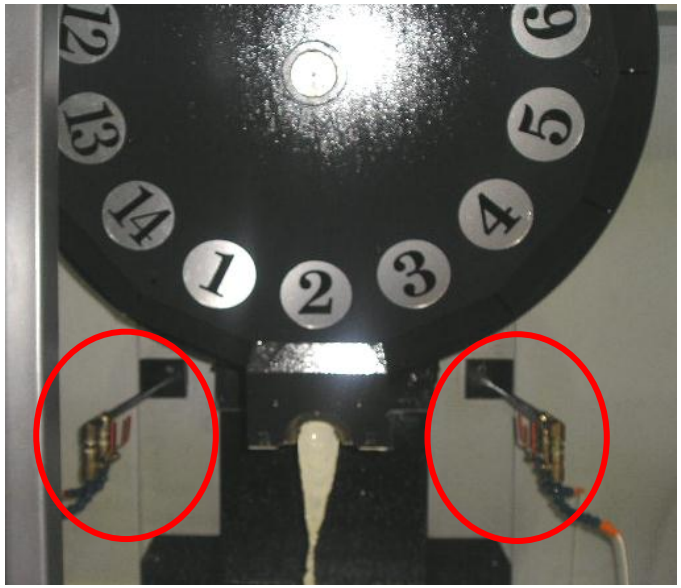
• 탭핑센터의 경우, 아파트형 공장 설치 비율이 높은 바, 장비 높이를 최적화하였음

More convenient

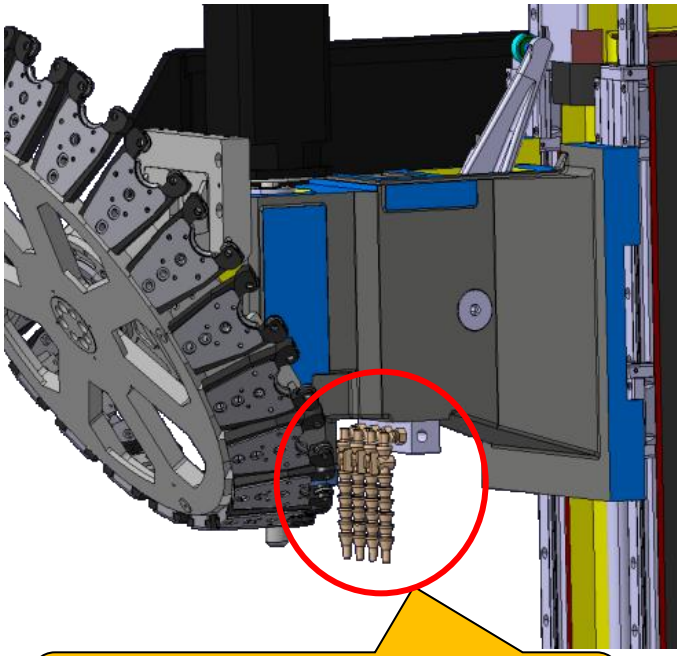
▪**Flood coolant nozzle**

DT 400

• Flood coolant nozzle is fixed in rear cover



DT 400/L II



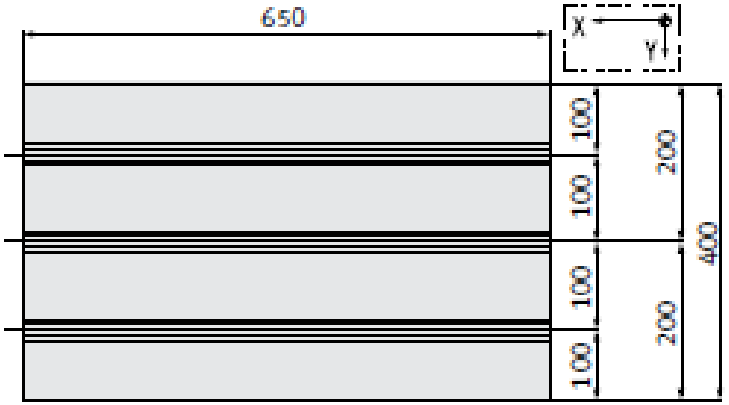
• **Coolant block attached to the back of the spindle and moved with each tools**

More convenient

▪**Apply for the Y-axis key home**

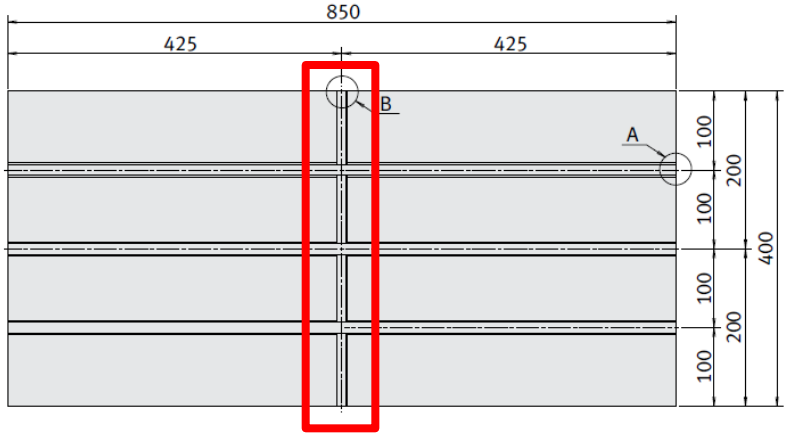
DT 400

• X-axis T-home is exist for the setting of Jig & Fixture or workpiece



DT 400/L II

• **Apply for the same shape(vs. Brother) at table surface, that is Y-axis key home**
- absorption of customers



• 탭핑센터의 강자인 Brother 사용(치구) 고객 흡수를 위한 Y방향 센터 키홈 적용함

More convenient

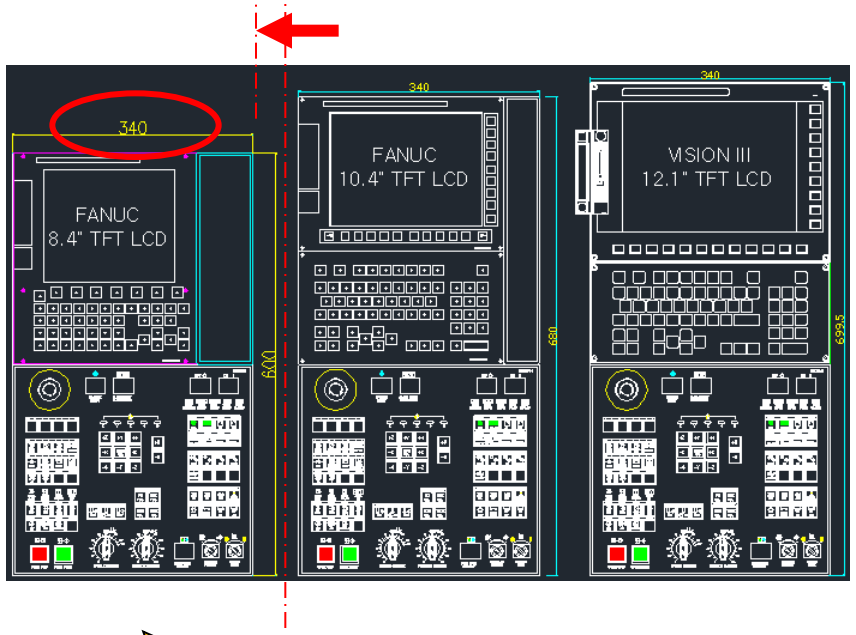
▪**OP Panel only for tapping center**

DT 400

• OP width 400mm in previous model

DT 400/L Ⅱ

• **Apply to tapping center's OP panel**
➔ DT 400 Ⅱ : 340mm ➔ reduced 60mm (width)



• **탭핑센터 전용 Slim형 조작반 신규 개발하여 적용**
• **조작이 잦은 버튼을 재 배치하여 효율을 극대화함**
Ex) DT400의 경우, 장비폭이 1720m ➔ 1620mm 변경

More convenient

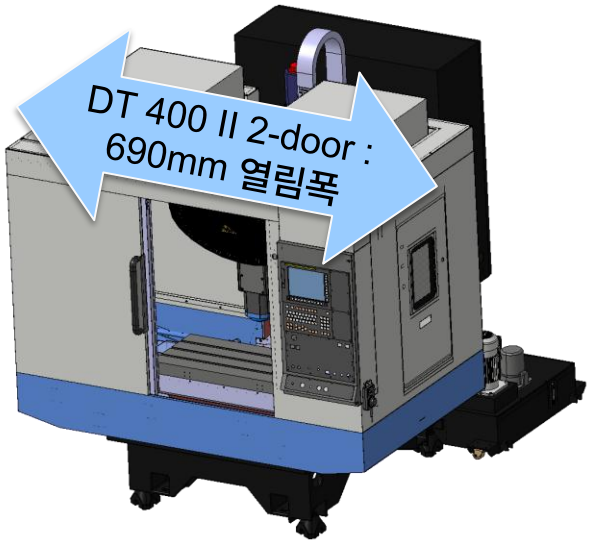
DT 400/L II

▪Convenience and improved machining condition (Opt.)

• **Depending on the purpose of use of the machine and operating environment**

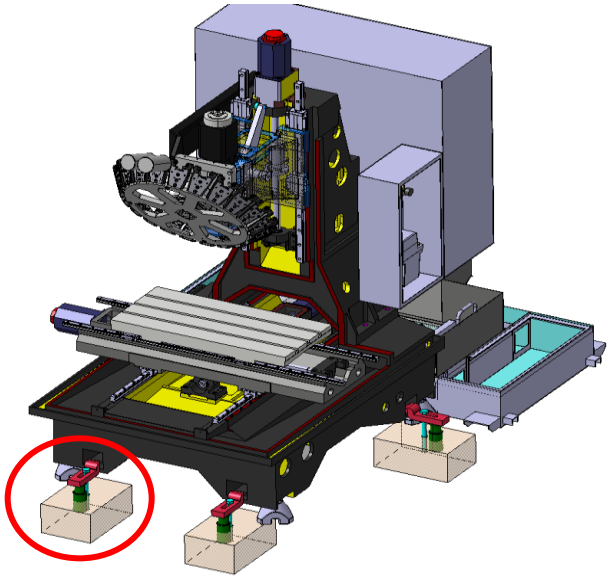
Two door

• easy setting for long parts



Side anchor

• Environment in accordance with the customer's factory & machine condition



More convenient

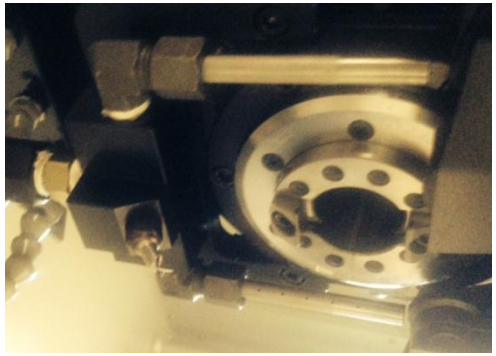
DT 400/L II

▪Options.

• **Depending on the purpose of use of the machine and operating environment**

Tool cleaning device

• Tool and spindle taper cleaning tool for removing micro-chip



Secondary chip box

• Operating for secondary chip box in fine aluminum machining

A. New & Upgrade vs. DT 400

B. Outstanding Productivity

DT Ⅱ series Line-up

DT 400 Ⅱ

DT 400L Ⅱ

Model	Controller	Target market	Spindle Speed (r/min)
DT 400 Ⅱ (X : 500mm)	F-0iMD	General Machining	Std. : 12000 Opt. : 24000
	Vision Ⅲ	Automotive parts	Std. : 12000
DT 400L Ⅱ (X : 700mm)	F-0iMD	General Machining	Std. : 12000
	F 31iB	Mock-up	Std. : 24000 Opt. : 12000
	Vision Ⅲ	Automotive parts	Std. : 12000